AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph at page 5, line 11 with the following rewritten paragraph:

01 Figure 4F is a cross section of the fused silica wafer after the slanted surface has been formed in the photoresist layer using a gray scale photolithography process~~.~~;

Please replace the paragraph at page 5, line 25 with the following rewritten paragraph:

02 In Figure 2, a preferred embodiment of the hybrid microlens is disclosed which enables large refractive microlenses to be made. The fused silica wafer ~~140~~240 is bonded to a thin layer of high refractive index material 220 such as silicon which has a refractive microlens 230 made on the surface. Between the fused silica wafer ~~140~~ 240 and the silicon 220, there is a layer of anti-reflection coating 210 to reduce the reflected light. The fused silica wafer ~~140~~240 acts as a spacer layer for efficient light beam broadening and precise control of the distance between the fiber end face and the refractive microlens.

Please replace the paragraph at page 6, line 9 with the following rewritten paragraph:

03 n_2 is the index of refraction of the spacer layer ~~140~~240,

Please replace the paragraph at page 6, line 10 with the following rewritten paragraph:

04 *L* is the thickness of the fused silica spacer wafer ~~140~~240,

Please replace the paragraph at page 7, line 9 with the following rewritten paragraph:

05 In Figure 3, an optical design for very low back-reflection is disclosed, in which the fused silica wafer ~~140~~240 has a small slanted surface 310 at the focal point of the microlens 230, and the optical fiber end face 320 is angle-cleaved. The space in-between the surface 310 and the end face 320 is filled with an index-matching epoxy 110. The small reflection resulting from the small index-mismatch at the two interfaces will be directed away from the optical fiber, resulting

in very low back-reflection. Our calculations have shown that the slant angle of both the surface 310 and fiber end face 320 should be between 3.5° and 8° in order to eliminate back-reflection while maximizing transmission and minimizing polarization dependent optical loss. The slanted surface 310 could be fabricated by dry etching using a gray scale photoresist mask technique as described earlier. The dimensions of the slanted surface can be 25 microns by 25 microns, for example. The slanted surface could extend either above or below the surrounding surface of the fused silica wafer.

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Please replace the paragraph at page 8, line 3 with the following rewritten paragraph:

06

After the silicon deep etching, the remaining photoresist is removed and an anti-reflection coating 210 is formed on the upper surface of the silicon wafer, as shown in Fig. 4D. The anti-reflection coating 210 should be optimized for a silicon-to-fused silica interface. Alternatively, the antireflection coating could be applied to the fused silica wafer ~~140~~240.

Please replace the paragraph at page 8, line 10 with the following rewritten paragraph:

07

Next, the patterned photoresist 430 is used to mask the wafer ~~140~~240 during dry etching. The photoresist 430 is eroded completely during etching and the retardation of the start of the fused silica etch is proportional to the photoresist thickness at that point of the wafer. As a result, the shape of the photoresist is transferred to the wafer, and the resulting slanted fused silica surface 310 is shown in Fig. 4G.

Please replace the paragraph at page 8, line 15 with the following rewritten paragraph:

08

Fig. 4H shows the silicon wafer 220 properly aligned and bonded together with a fused silica wafer ~~140~~240. The microlens mesa in the silicon layer 220 corresponds with the configuration of the slanted surfaces 310 in the fused silica layer ~~140~~240. The very thin layer of bonding agent, which is not shown, can be an optical epoxy or polyimide, both of which have indices of refraction similar to fused silica. Alternatively, anodic bonding may be used to bond the two wafers together.

Please replace the paragraph at page 8, line 23 with the following rewritten paragraph:

D9

Next, a normal refractive microlens fabrication process is used to make the microlenses 230 on the silicon layer, and the result is shown in Fig. 4J. The refractive microlens manufacturing process can be a reflow photoresist process, a gray scale photolithography process, or any other process which results in a continuously graded profile with a controllable shape.